

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



THREE NEW GERRIDS FROM NORTH AMERICA
(HEMIP.)

BY C. J. DRAKE AND HALBERT M. HARRIS.

In working over numerous specimens of water-striders belonging to the family Gerridae the writers discovered a new species of *Potamobates* and two new *Trepobates* from North America. The descriptions of these species with distributional notes on related forms are given below.

***Potamobates osborni*, n. sp.**

Form, size and color very similar to *P. bidentatus* Champ., but differing very distinctly in the structure of the male genital segments, the much shorter legs, and the color markings of the anterior legs. Length, 12.7 mm., width, 3.6 mm.

Apterous male: Elongate; black, an oblong spot on the vertex, a median line on the disc of the pronotum, the acetabula beneath, all coxae, anterior femora above (except at apex), anterior trochanters beneath, and body beneath (excepting a large elongate spot on each side of mesosternum, the anterior portion of metasternum and part of last segment of venter black) ochraceous. Proportional lengths of antennal segments and the patches of silvery hairs on sides of thorax, connexivum and venter as in *P. bidentatus*. Last segment of venter deeply and rather broadly notched in the middle, the sides of the notch nearly straight, the base rounded. Genital segments beneath mostly ochraceous, the apical portion of first segment and ventral portion of second blackish. The first genital segment is somewhat asymmetrical, without ventral teeth; the second bears (on left side) a long, sinuated, cylindrical, black process which is somewhat triangularly expanded at the apex.

Apterous female: Size and general color as in male, the posterior margin of the penultimate segment of venter triangularly notched in the middle. First genital segment narrowed posteriorly, terminating in a long, tapering, horizontal process; the entire segment as long as the four preceding abdominal segments. Second genital suspended beneath the enlarged basal part of first, its apical margin embrowned.

Holotype, male, and *allotype*, female, Montzorango, V. C., Mexico, Feb. 11, 1892, Professor H. Osborn, collector. *Paratypes*, two males and two females, taken with type. In both sexes the femora of the intermediate legs have a narrow ochraceous stripe on their inner and outer faces. The winged form is unknown.

Potamobates horvathi Esaki.

Ann. Mus. Nat. Hung., XXIII, 1926, p. 254, Fig. 2.

Three specimens from Escuintla, Guatemala, are at hand. The macrop-terous male and female differ from the apterous specimen before us and the original description in having the head entirely black, except for the ochraceous spot between the eyes. The pronotum is very large and long, rounded behind, with prominent humeri. The hemelytra and wings have been broken off at their bases.

Trepobates pictus H.-S.

As recently pointed out by Esaki the female of this insect is very distinct and may be recognized by the strongly produced median portion of the posterior margin of the mesonotum and the ciliate apical margin of the last segment of the venter. The claspers of the male are very long, sharply curved inward and quite different from those of related species. The color markings are quite variable. Specimens are at hand from Knoxville, Tenn., collected by Prof. H. E. Summers, and from Summit, Sept. 4, 1926, McComb, Sept. 8, 1924, Washington, Sept. 10, 1924, and Charleston, Miss., Sept. 7, 1925, collected by H. M. Harris. Most of the published records of this insect undoubtedly refer to *T. inermis* Esaki.

Trepobates inermis Esaki.

Esaki, Ann. Mus. Nat. Hung., XXIII, 1926, p. 140.

In the apterous form of this species the posterior margin of the mesonotum is truncate in both sexes. The femora and basal portion of tibiae of the intermediate legs are clothed beneath with long hairs in the male, the hairs being about as long as the diameter of the segment bearing them. The claspers of the male are much shorter and quite different from those of *pictus*; the form of the body is slightly slenderer and the color, while very variable, tends to be slightly darker. The third antennal segment is, as in *pictus*, distinctly longer than the second. However, it should be noted that the antennae tend to be a little longer in the female than in the male. Several hundred specimens from the following localities have been examined: *Ohio*—Columbus, Sept. 10, 1913; Sugar Grove, Aug. 24, 1914, Ira, Summit Co., Aug. 31, 1916; Berea, July 16, 1916; and Buckeye Lake, June 30, 1916, C. J. Drake. *Tennessee*—Knoxville, June–July, 1890–1891, H. E. Summers. *New York*—Ithaca, July 29, 1895, H. E. Summers. *Texas*—Weslaco, July 1, 1927, M. McPhail. *Illinois*—Oaktown, Aug. 10, 1905; and Havana, June 29, 1910. *Mississippi*—Charleston, Sept. 9, 1926; White Lake, Grenada Co., Sept. 14, 1926; Fayette, Sept. 10, 1924;

Natchez, Sept. 8, 1924; Heidelberg, Sept. 5, 1924; Washington, Sept. 16, 1924, H. M. Harris; Agr. College, Sept. 1896, H. H. Weed; and Vicksburg, July 17, 1921, C. J. Drake. *Iowa*—Ames, summers of 1922–1927 (Drake and Harris); Burlington, Sept. 8, 1925, H. M. Harris; Donnelson, July 2, 1927; and Cedar Falls, July 26, 1927, Harris and Johnston. *Kansas*—Kiowa County, July 5, 1923, R. H. Beamer. The winged form is at hand from Iowa, Tennessee, Kansas and Texas. The pronotum in this form is large, pentagonal, truncate in front, slightly narrowed anteriorly; black, a broad stripe on each side, a small spot in front and the posterior margin of triangular base yellow; or with a spot on each side in front and most of base yellowish.

Trepobates trepidus, n. sp.

Apterous form: Similar to *T. inermis* Esaki in form but slenderer and longer. Color markings very variable. The median portion of head, anterior margin of pronotum, also a broad median stripe and a broad stripe on each side, and most of mesonotum black. Mesonotum frequently with a broad yellowish band on each side above, its posterior margin yellowish to yellowish brown. Antennae dark brown, the basal portion of the first segment yellowish; segment I enlarged towards the apex, strongly curved, much longer than any of the others; II shortest, subequal to one-half of I; III a little longer than II, slightly shorter than IV. Body beneath yellowish; rostrum reaching beyond intermediate coxae, brown, the basal segment yellowish.

Male: Anterior femora quite stout, strongly curved at the middle, brownish black, their bases and apices yellowish; distinctly longer than tibiae. Intermediate legs very long, brown, the femora with a longitudinal yellowish stripe on each side; with long hairs beneath femora and base of tibiae, the hairs slightly shorter than the diameter of the segment bearing them. Abdomen above black, a triangular spot on first segment and basal part of last segment yellowish, the terminal segment roundly excavated behind; connexivum brownish black. Last segment of venter broadly and roundly emarginate behind, as wide as the two preceding segments, the margin with moderately long hairs; sides of abdomen brownish black. First genital segment with numerous very long dark brown hairs on the basal portion, the median portion behind with shorter blackish hairs. Claspers strongly curved, very stout, much stouter than in *inermis*. Length, 3 mm.; width, 1.42 mm.

Female: Slightly longer and broader than male. Anterior femora slenderer than in male. The yellowish stripes on each side of mesonotum broader. Connexivum, mesonotum, and sides of abdomen with prominent yellowish markings. Last abdominal segment beneath clothed with numerous long dark brown hairs.

Macropterous form (male): Pronotum large and shaped as in winged form of other species; with a longitudinal stripe on each side and the posterior margin yellowish. The apex of pronotum not so narrowly rounded as in *inermis*; the veins of hemelytra not as prominent. Wings slightly shorter than hemelytra.

Holotype, apterous male and *allotype*, apterous female, Soledad, Mexico, Jan. 14, 1899, in the H. E. Summers collection, Iowa State College. *Paratypes*: eight males and five females collected with type. *Morphotype*, winged male, Gualan, Guatemala, Jan. 23, 1905. Aside from other characters, the long hairs on the first genital segment of the male, the hairy last segment of venter of the female and the annulate intermediate and posterior femora serve to separate this species from its congeners.

Trepobates knighti, n. sp.

Antennae dark fuscous, the basal portion of first segment testaceous to dark reddish brown; segment I about twice as long as II, III and IV subequal, each one-fourth longer than II.

Apterous male: Color markings quite variable, generally with a broad longitudinal frequently arrow-shaped black stripe on head and a more or less distinct line above eye on each side. A small anterior portion, the middle and sides of pronotum, anterior portion of mesonotum, a median line, a broad band on each side above (connecting a little in front of posterior margin with a broad irregular black band on each side), and an irregular band on each side at base black. In many specimens the mesonotum is almost entirely black, having a spot on each side above, a narrow stripe on each side of posterior half of median line, and the posterior margin yellowish. Metanotum black with a small transverse line on each side yellowish. Abdomen above black, except the last segment, frequently with an aeneous lustre. Connexivum rather broad, narrowly rounded behind, brownish black, sometimes with yellowish markings. Entire body beneath yellowish. Sides of abdominal segments, except last, dark brown. Rostrum with a triangular spot on segment I, and almost all of II and III blackish. Anterior femora strongly curved, with a broad band at apex and the apical two-thirds above yellowish brown. Intermediate femora with a narrow brownish stripe on either side, the under surface and also basal portion of tibiae clothed with long hairs, the length of the hairs being about equal to the diameter of the segment bearing them. Last segment of venter almost as long as the two preceding, thickly clothed with erect hairs. Antennae with third segment beneath bearing a row of extremely long hairs, the longest being almost one-third the length of the entire segment. Length, 3 mm.; width, 1.42 mm.

Apterous female: Slightly longer than male. Antennae slightly longer than in male, the proportional lengths of segments practically the same, the third segment without the long hairs on its lower face. Posterior margin of mesonotum truncate. Connexivum very broad, the outer margin except at base and apex clothed with long hairs, the last segment terminating behind in a very long, almost erect, hairy, spine-like process. Color very variable, generally marked more or less similar to male. Intermediate legs without the long hairs on femora and tibiae.

Macropterous form: Pronotum large, pentagonal, black, the markings variable; frequently with a broad, yellowish stripe on each side of the posterior margin. In some specimens a spot on each side in front, some-

times a spot between these, and most of posterior margin of pronotum yellowish. Hemelytra black, the basal portion darker; veins dark, fairly distinct. Wings a little shorter than hemelytra, dark brown. Length, 5.13 mm.; width, 1.62 mm.

Holotype, apterous male and *allotype*, apterous female, Hollister, Missouri, Sept. 5–10, 1925, H. H. Knight, collector; in authors' collection. *Paratypes*, many males and females taken with type and at following localities: Ames, Iowa, Aug. 6, 1927 (H. Osborn), and in the summers of 1924–1927 (Drake and Harris); Mt. Pleasant, Iowa, July 14, 1927; Elkader, Iowa, July 28, 1927; and Donnelson, Iowa, July 13, 1927 (Harris and Johnston); Webster City, Iowa, Aug. 12, 1927 (H. M. Harris). Paratypes in collections of Iowa State College, Calif. Acad. Sci., U. S. National Museum, H. H. Knight and authors.

This species is very distinct from any known species and may be readily recognized by the long hairs on segment III of the antennae and the hairy terminal segment of venter and first genital segment of male, and the almost erect, spine-like connexival process of the female. The long hairs on the third antennal segment normally extend obliquely forward but sometime they lie almost directly forward and so close to the segment that they may be easily overlooked. The color as in other species is very variable.